

REMARKS

The foregoing amendment amends Claims 9 and 12-14 to clarify the invention. Claims 1-10 and 12-27 are currently pending in this application, with Claims 1-8 and 26-27 being withdrawn. For the reasons set forth below, Applicants believe that the rejections should be withdrawn and that the claims are in condition for allowance.

REJECTION OF CLAIM 9 UNDER 35 U.S.C. 102(b)

The Examiner rejected Claim 9 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,526,169 to Kikuchi *et al.* ("Kikuchi"). In order to anticipate a claim under 35 U.S.C. 102(b), a reference must disclose each and every element of a claim. As discussed below, this rejection is respectfully traversed.

The foregoing amendment to Claim 9 clarifies that "a distance between the electrodes formed on the one pair of side faces and a length of the ridge portion in the direction of the incident light are defined so that light propagating in the ridge portion does not get out of the ridge portion." As described in the specification, when the length (L) of the ridge portion in the direction of the incident light is short, light is emitted from the end face of the electro-optic crystal even if it is diffracted and consequently there is no light loss. On the other hand, when L becomes long, diffracted light proceeds in such a direction as to get out of the ridge portion. [0114]. The waveguide limitation of Claim 9, is designed so that the light propagates without running against the inner wall of the ridge portion. Thus, as a result, the structure of Claim 9 enables any polarization state to be easily maintained because the light does not run against the inner wall of the ridge portion, and there is no need to provide a shut/closed structure in the lower part of the ridge portion.

With respect to Claim 9, Kikuchi lacks one or more features of the claimed invention. Kikuchi discloses a waveguide that does not take into consideration the ridge portion width nor the direction of incident light. The waveguide disclosed by Kikuchi results in beam spreading due to diffraction and leakage from a ridge portion. Figure 7 of Kikuchi illustrates that the electrodes are only formed on the side faces. Figure 3 of Kikuchi illustrates another embodiment where an outer electrode 3 is formed on an outer surface of the crystal 1 and a groove electrode 5 is formed in the groove 8. The outer electrode is

formed only on the outer surface of the crystal. None of the figures and corresponding sections of the specification of Kikuchi disclose “a distance between the electrodes formed on the one pair of side faces and a length of the ridge portion in the direction of the incident light”, as required by Claim 9. Kikuchi does not disclose each and every limitation of Claim 9. Accordingly, Claim 9 is patentable over Kikuchi.

REJECTION OF CLAIMS 10, 13 AND 16-24 UNDER 35 U.S.C. 103(a)

The Examiner rejected Claims 10, 13 and 16-24 under 35 U.S.C. 103(a) as being unpatentable over Kikuchi as applied to Claim 9 and in view of U.S. Patent No. 4,866,406 to Minakata *et al.* (“Minakata”). For at least the following reasons, the Applicants respectfully traverse this rejection. The Examiner has not established a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the Examiner must: (1) identify the reason why a person of ordinary skill in the art would have combined the teachings of the references; and (2) show that the references teach or suggest all of the claimed limitations.

Claims 10, 13 and 16-24 depend directly or indirectly from independent Claim 9. Accordingly, for at least the same reasons discussed above, Claims 10, 13 and 16-24 are patentable over Kikuchi as applied to Claim 9 and in view of Minakata.

Furthermore, with respect to Claim 13, the foregoing amendment to Claim 13 clarifies that the “insulator covers the ridge portion and parts of the electrodes, formed on one pair of the side faces.” In contrast, Figures 1a and 1b of Minakata disclose only the top of the ridge portion 2 being covered by an insulating silicon dioxide layer 3. None of the figures and corresponding sections of the specification of Minakata show otherwise. Minakata does not disclose or suggest an insulator that covers the ridge portion and parts of the electrodes, formed on one pair of the side faces, as required by Claim 13. Accordingly, Claim 13 is patentable over Kikuchi as applied to Claim 9 and in view of Minakata.

REJECTION OF CLAIM 25 UNDER 35 U.S.C. 103(a)

The Examiner rejected Claim 25 under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. as applied to Claim 9. For at least the following reasons, the Applicants respectfully traverse this rejection.

Claim 25 depends from independent Claim 9. Accordingly, for at least the same reasons discussed above, Claim 25 is patentable over Kikuchi as applied to Claim 9.

ALLOWABLE SUBJECT MATTER

In the office action the Examiner objected to Claims 12, 14 and 15 as being dependent upon a rejected base claim, but directed towards allowable subject matter if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The foregoing amendment amends Claims 12 and 14 to include all of the limitations of the base claim and all intervening claims. Additionally, Claim 15 depends directly from amended Claim 14. Accordingly, Claims 12, 14 and 15 should be allowed.

CONCLUSION

In light of the foregoing, it is respectfully submitted that the pending claims are allowable and a notice of allowance is respectfully requested. If there are any issues that can be resolved via a telephone conference, the Examiner is invited to contact the undersigned at 404.685.6799. The Commissioner is authorized to charge any additional fees that may be due or credit any overpayment to Deposit Account No. 11-0855.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brenda O. Holmes", written in a cursive style.

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